

first 50 to 75 years of operation should be considered before such claims can be made. Population growth will put extra demand on these resources. Repository operation will be competing for these resources and may be restricting the growth in the area.

**Response**

DOE does not expect the repository to restrict growth in the region. The needs of the repository are well defined and very predictable so that they can be integrated into development plans and provide a base to support resource expansion. Population growth on the other hand is much less predictable and often out paces development because planning has not provided adequate resource development goals.

Electrical power demand in Nevada Power's service area has been increasing by about 6 percent per year, the highest rate in the nation. Nevada Power has used detailed forecasting and strategic planning to effectively accommodate the 6 percent growth rate. The repository electrical power needs would not be large in comparison to the growth rate and are very predictable. The repository should not place any limiting restriction on electrical power in the region to the extent that growth would be limited. Although other resources are not uniformly monitored and included in integrated planning, the regional suppliers have responded to and supported the regional growth rate for fuel and building materials. DOE expects that this historical response would continue and there would be no growth limitation.

**7.5.9 (13406)**

**Comment** - 010296 / 0031

The DSEIS goes on to identify several elements to meet the increased power requirement--an upgraded NTS distribution system; backup (diesel generator) power; a three MW solar generator; and the (currently speculative) 436 MW NTS wind farm. The DOE's electrical power plan sounds like a bunch of "cobbled together" elements, rather than a regional electric power system. Nye County believes that DOE should consider the needs of the area's regional grid and coordinate with other entities to develop a well-planned and integrated system.

**Response**

DOE considers electrical energy obtained from the NTS grid supported by regional suppliers as the primary source of power for the repository. The solar facility, which could produce as much as 3 megawatts of power, would be a dual-purpose facility, serving as a demonstration of photovoltaic power generation and augmenting the overall repository electric power supply (as much as 7 percent). The on-site diesel generators are used as back-up emergency units only and are an integral part of the facility design.

As discussed in Section 4.1.11.2 of the EIS, the NTS electrical power transmission system and regional transmission systems feeding the NTS grid would need to be upgraded to support the repository power needs. DOE expects to coordinate and negotiate with regional power suppliers to obtain the power required for the Repository. However, the fraction of regional power that would be needed by the repository is small.

## **7.5.10 MANAGEMENT OF SITE-GENERATED WASTE**

**7.5.10 (165)**

**Comment** - 6 comments summarized

The State of Nevada, in several different comments, stated its belief that the proposed Yucca Mountain Repository could not use the Nevada Test Site (NTS) for low-level radioactive waste disposal. One comment expressed the concern that Yucca Mountain Repository low-level waste would not be NTS onsite-generated waste. The comment implied that for this reason the Yucca Mountain Project would be not be authorized to use NTS for low-level radioactive waste disposal. Other comments expressed the concern that NTS disposal would not be possible since NTS disposal facilities are intended solely for the disposal of defense low-level radioactive waste. These comments also expressed the concern that NTS would not be an appropriate disposal location for Yucca Mountain Repository waste because its waste would be commercial low-level radioactive waste due to the fact that the repository would be a Nuclear Regulatory Commission-licensed facility. Finally, another comment indicated the belief that no authority exists that would permit Yucca Mountain-generated low-level radioactive waste to be disposed of at NTS.

**Response**

At present, the Yucca Mountain Project is not authorized to use the Nevada Test Site (NTS) for low-level radioactive waste disposal. However, the concerns expressed in the comments would not prohibit DOE from pursuing NTS as the disposal site for its low-level radioactive waste.

The DOE Waste Management Programmatic EIS Record of Decision (63 FR 3629, January 23, 1998) and the amended Record of Decision for the NTS Sitewide EIS (64 FR 10061, February 25, 2000) designated NTS as a regional DOE low-level radioactive waste disposal site. As a regional disposal site, offsite DOE generators, including Yucca Mountain, may apply to NTS to send their low-level radioactive waste for disposal. The DOE generators that may send low-level radioactive waste to NTS for disposal are not restricted by waste source, but must have an NTS-approved Waste Certification Program. DOE would ensure that the proposed repository at Yucca Mountain was an approved generator in accordance with the requirements of Nevada Test Site Waste Acceptance Criteria (DIRS 139033-DOE 1997) prior to disposing of low-level radioactive wastes generated from repository operations.

The repository would be licensed by the Nuclear Regulatory Commission. However, waste generated by operations at the proposed repository would be DOE-owned and -generated radioactive waste and not commercial waste. DOE would take title to the spent nuclear fuel at the commercial nuclear reactor sites, and any wastes generated as a result of transportation and repository operations would be DOE wastes. DOE would treat and dispose of repository-generated low-level radioactive waste in accordance with its license and any applicable Nuclear Regulatory Commission regulations. Applicable regulations governing disposal of wastes from Commission-licensed facilities can be found at 10 CFR Part 20.

Section 20.2001 states that: “A licensee or applicant for a license may apply to the Commission for approval of proposed procedures, not otherwise authorized in the regulations in this chapter, to dispose of the licensed material generated in the licensee’s activities.”

Consistent with 10 CFR 20.2001, as applicable, DOE may discuss, in documents associated with a license application, the disposal of low-level radioactive wastes from repository operations at the NTS.

**7.5.10 (1030)**

**Comment** - EIS002101 / 0012

The casks, the lines, the cords, the gloves that you’ll be using out there to handle this stuff, that’s all nuclear waste then, too. Does that stay in Nevada or does that go? You could address all the nuclear waste you’re going to create. If you didn’t move it, you’d create a lot less nuclear waste. So maybe you could address that.

**Response**

Section 4.1.12 of the EIS addresses the management of repository-generated waste and hazardous materials, provides estimates of the total quantities of wastes to be generated, and assesses these quantities against current public and private capacity to treat and dispose of such wastes. As discussed in Section 4.1.12.2, DOE plans to treat low-level radioactive wastes at the Waste Treatment Building, and subsequent to treatment, would need to dispose of an estimated maximum of 71,000 cubic meters (2.5 million cubic feet) of low-level radioactive waste generated during emplacement activities and as a result of decontamination of surface facilities. Under current plans, DOE may dispose of these wastes at the Nevada Test Site, which has an estimated disposal capacity of 3.15 million cubic meters (110 million cubic feet). The EIS concludes that the repository’s impact to low-level radioactive waste disposal capacity at the Nevada Test Site would be less than 2.2 percent of the total capacity. Tables 4-40, 4-41, 4-42, and 4-43 of the EIS list the total estimated quantities of waste that would be generated during construction, emplacement and development activities (2010 to 2033), closure, and for the flexible design operating mode scenarios as part of the Proposed Action, respectively.

**7.5.10 (3134)**

**Comment** - EIS000553 / 0004

The issue of the water that you are going to be using surrounding this activity is very frightening to me, not only in the limited source of water that we have in this country, but the actual ground pollution of water. And I don’t feel comfortable with the EIS of how you have shared that information with me as to how you are going to deal with a contamination of the water you are going to use.

Like I said, after 13 years I would hope you would have a very specific plan of how you are going to deposit that water into our environment.

**Response**

Table 4-11 of the EIS lists estimates of water use for the construction, operation and monitoring, and closure phases of the repository. Among other things, the accompanying text presents a discussion of the potential for contaminant migration to groundwater, and the potential for water demands associated with the repository to deplete groundwater resources. Section 4.1.3.3 of the EIS shows that natural features, such as depth to groundwater, thickness of alluvium in the area, and the arid environment, combined with strict adherence to regulatory requirements, use of engineering controls, monitoring, and implementation of applicable plans and procedures (such as the Spill Prevention Control and Countermeasures Plan), would work together to reduce the potential for contaminants to reach groundwater. The EIS also shows that the water demands of the repository combined with those of the Nevada Test Site would, at most, have minor impacts on the availability of groundwater in the Amargosa Desert in comparison to the quantities of water already being withdrawn there (Section 4.1.3).

Section 4.1.12 of the EIS discusses the management of wastewater from repository operations. As discussed in Section 4.1.3.2, DOE would discharge industrial wastewater to evaporation ponds (which would be double lined with heavy plastic and have leak detection systems) and sanitary sewage would be piped to septic tanks and drainage field systems, neither of which would be anticipated to introduce contaminants to surface water or groundwater in the Yucca Mountain area.

**7.5.10 (4867)**

**Comment** - EIS000337 / 0005

Pg. 2-20, 5th par: How much will be processed and to what facilities will the waste be shipped? You must know the facilities and was this transportation figured into the accident rates? What does the following statement mean? "For example, decontamination water could be treated and recycled to the extent practicable."

**Response**

Section 4.1.12 of the EIS contains estimates of the waste volumes that repository activities would produce during the construction, operation and monitoring, and closure phases. DOE has identified facilities to which it could ship this waste and has included the transportation of waste off the site in the EIS, as discussed in Section J.3.6.2. The sites analyzed for transportation impacts might not be the sites that DOE would use for waste disposal, some of which would occur as much as 35 or more years in the future. The status of the sites could change over this period.

The methods of treatment of decontamination water would include filtration followed by evaporation or condensation and ion exchange or, as an alternative, grouting of liquid low-level waste for off the site disposal. The treated water would be reused. Section 4.1.12.4 of the EIS discusses wastewater recycling.

**7.5.10 (5360)**

**Comment** - EIS001887 / 0078

Page 2-20; Section 2.1.2.1.1 - North Portal Operations Area

The Draft EIS should state how the empty canisters would be decontaminated and what would be done with the resultant waste from the decontamination.

**Response**

Dual-purpose canisters would be cut open in the fuel unloading pools, after which they would be treated in a manner similar to transportation casks. The used canisters would be surveyed in the cask preparation pits and the exterior of the canister overpacks would be decontaminated as necessary to meet transportation criteria. Under current plans, DOE would ship the canisters off the site for disposal, and the overpacks would be returned to the repository for reuse. Under current plans, DOE would transfer decontamination waste to the Waste Treatment Building for processing and shipment off the site. DOE has modified Section 2.1.2.1.1 of the EIS to include additional details on this subject.

Section 4.1.12 of the EIS provides more detailed discussion of DOE's management of repository-generated wastes and hazardous materials. For example, Table 4-40 lists the estimated total waste quantities for repository activities

associated with emplacement and development. As discussed, sanitary sewage and industrial wastewater generated during repository-related activities would be treated and disposed of at onsite facilities. DOE has not made final decisions on the specific waste management technique that would be used for managing all wastes, including decontamination water. DOE could use several methods, including filtration to remove solids (dusts, cuttings, etc.) and treatment with activated carbon and ion exchange media to remove soluble contaminants, as well as best management practices for pollution prevention and waste minimization during repository construction and operation.

#### **7.5.10 (5868)**

**Comment** - EIS001622 / 0017

Compliance with State Hazardous Waste Permit Requirements

Activities conducted in California associated with the Yucca Mountain Project must comply with State hazardous waste management regulations, including permitting requirements and the California Environmental Quality Act (CEQA) requirement. The State of California, through the Department of Toxic Substances Control (DTSC), is responsible for regulating any activity that generates, transports, treats, stores, or disposes of hazardous waste. DTSC is authorized by the U.S. Environmental Protection Agency to act as the permitting agency for hazardous waste facilities under the Resource Conservation and Recovery Act (RCRA). Any treatment of hazardous waste generated from commercial nuclear facilities that does not meet the RCRA definition, but does meet the California-only waste non-RCRA definition, would require a non-RCRA permit or authorization of DTSC for each site. Furthermore DTSC is required to comply with the provisions of the California Environmental Quality Act (CEQA) in evaluating potential impacts associated with the issuance of RCRA or non-RCRA permits for any activities in California associated with the Yucca Mountain Project.

Recommendation: The DEIS should state that any hazardous waste management activities related to the proposed project must be appropriately permitted and that DOE will comply with all State permit requirements for the proposed project, including the California Environmental Quality Act requirements.

#### **Response**

DOE does not anticipate hazardous waste management activities in California in relation to the proposed Yucca Mountain Repository. Therefore, it does not anticipate needing hazardous waste management permits from the State of California. The only activity related to the proposed repository in California would be the transportation of spent nuclear fuel and possibly high-level radioactive waste to Yucca Mountain. Chapter 6 of the EIS describes impacts associated with the transportation of spent nuclear fuel and high-level radioactive waste.

Before shipping high-level radioactive waste (some of which currently contains hazardous constituents) is also hazardous waste, to the proposed repository, DOE would treat it in such a manner that it did not exhibit characteristics of hazardous waste. High-level radioactive waste that is a listed hazardous waste would be delisted prior to shipment to the repository. In addition, there is no high-level radioactive waste in California.

The California Environmental Quality Act applies to California “public agencies” which are defined as “any state, board, or commission, any county, city and county, city, regional agency, public district, redevelopment agency, or other political subdivision,” and to “projects” proposed by California public agencies that have the potential for physical impacts on the environment. Because DOE is not a California public agency as defined by the California Environmental Quality Act, and the Proposed Action for the repository is not a project being proposed by a California public agency, the Act would not apply.

DOE would comply with applicable laws related to hazardous waste management activities. The Department does not anticipate the need for hazardous waste management permits in relation to the waste anticipated for emplacement at the repository, but might generate small quantities of hazardous waste as a result of normal industrial activities. DOE would comply with all appropriate regulations.

#### **7.5.10 (5941)**

**Comment** - EIS001622 / 0044

Section 4.1.3.2, Page 4-22, 4th Paragraph states that 480 to 1,300 liters per year of cleaning solvents (described as “a relatively small quantity”) would be used at the facility. DOE should redistill and reuse as much of these solvents as

possible. A release of that magnitude reaching ground water could contaminate between 77,000 to 210,000 acre-feet of water to concentrations above the drinking water standard.

**Response**

The solvents that DOE would use (less than 1 gallon a day) for the most part would not be hazardous materials and should generate little or no hazardous waste. Administrative controls would ensure minimal use of such hazardous materials and minimal generation of hazardous and mixed wastes. DOE would ship all used solvents off the site for recycling. As stated in EIS Section 4.1.3.2, the potential for contaminants to reach surface water would be generally limited to the occurrence of a spill or leak followed by a rare precipitation or snow melt event large enough to generate runoff prior to cleanup activity. Facilities would be designed to contain radioactive or hazardous materials so that flooding would not pose a threat of release of contaminants to the environment. Spills and leaks would also be managed in accordance with applicable regulations and plans (such as the Spill Prevention Control and Countermeasures Plan) to prevent, control and remediate spills. Section 4.1.3.3 addresses the potential for contamination of groundwater. To pose a threat to groundwater, a contaminant would have to be spilled or released and then be carried downward either by its own volume or with infiltrating water. DOE has concluded in the EIS that natural features such as depth to groundwater, thickness of alluvium in the area, and the arid environment, combined with strict adherence to applicable regulatory requirements, use of engineering controls, monitoring, and implementation of applicable plans and procedures (such as the Spill Prevention Control and Countermeasures Plan), would work together to virtually eliminate the potential for contaminants to reach groundwater.

**7.5.10 (6104)**

**Comment** - EIS000610 / 0001

On page 2-20, fifth paragraph, you talk about, for example, quote, “decontamination water could be treated -- contaminated water could be treated, could be, and recycled to the extent practicable.”

It doesn't make any sense. I mean, that is an easy lazy engineer's way of saying we can do something, but what you can do, I don't know.

**Response**

The discussion referenced by the commenter is in Section 2.1.2.1.1 of the EIS, which describes the North Portal Operations Area, the largest of the primary operations areas at the proposed repository. The purpose of this discussion is to describe the proposed repository facilities and operations, closure, and performance confirmation activities. The analysis of potential environmental impacts is in subsequent chapters of the EIS. The quoted sentence is intended to communicate in a general sense the types of measures DOE could implement to manage wastewater generated in the process of decontaminating canisters and shipping casks. Section 4.1.12 of the EIS provides more detailed discussion of DOE's management of repository-generated wastes and hazardous materials. For example, Table 4-40 lists the estimated total waste quantities for repository activities associated with emplacement and development. As discussed, sanitary sewage and industrial wastewater generated during repository-related activities would be treated and disposed of at onsite facilities. DOE has not made final decisions on the specific waste management technique that would be used for managing all wastes, including decontamination water. DOE could use several methods, including filtration to remove solids (for example, dust and cuttings) and treatment with activated carbon and ion exchange media to remove soluble contaminants, as well as best management practices for pollution prevention and waste minimization during repository construction and operation. The analyses have built-in conservatism so that estimated impacts present an upper range, allowing DOE flexibility later to implement measures that would actually result in even lower quantities of waste being generated or requiring treatment and disposal.

**7.5.10 (6460)**

**Comment** - EIS001916 / 0002

(S.4.1.13) Waste Management. I am concerned about the superficial information being given to the public when DOE research itself shows faulty areas.

**Response**

Section S.4.1.13 of the EIS summarizes the detailed information provided in Section 4.1.12 of the EIS. In particular, Section 4.1.12 describes the management of site-generated wastes, including construction, hazardous, low-level radioactive, mixed radioactive and hazardous, and sanitary and industrial wastes, as well as sewage and industrial

wastewater. The references for the data in that section contain a great deal of information about the assumptions and data DOE used to develop the information in the EIS. DOE made all the references for the Draft EIS available on the Internet (<http://www.ymmp.gov>) and on compact disk at 28 sites around the United States, including two sites in Clark County, Nevada. Hard copies of all references are available at the University of Nevada, Las Vegas; University of Nevada, Reno; Yucca Mountain Science Center in Pahrump; and DOE Headquarters in Washington, D.C.

Chapter 11 of the EIS also describes the applicable statutory and regulatory requirements that DOE anticipates could be relevant to the proposed repository, many of which govern DOE's management of site-generated wastes, effluents, and emissions.

**7.5.10 (7088)**

**Comment** - 010073 / 0006

Table S-2 - Despite a small increase in total employment, the SDEIS projects a 42 percent increase in solid waste generated under the low temperature alternative. No explanation for this dramatic increase is afforded in the SDEIS.

**Response**

Section 3.1.12 of the Supplement to the Draft EIS discusses waste generation. That section explains that the largest waste volumes would result from the lower-temperature repository operating mode cases in which surface aging would be employed.

The comment refers to the upper range of sanitary solid and industrial solid generated under the lower-temperature operating mode, 190,000 cubic meters compared to 85,000 cubic meters under the Draft EIS thermal load scenario. The dramatic increase in sanitary and industrial solid waste comes from the additional workers for the construction and operation of the surface aging facility and more years (up to 300 years) of postemplacement monitoring. It is the increase in time that the workers would be onsite for monitoring (300 years compared to 76 years under the Draft EIS scenario) that primarily would contribute to the dramatic increase in sanitary and industrial solid waste, rather than the increase in the size of the workforce. Waste generation is presented in Section 4.1.12 of the Final EIS.

**7.5.10 (7983)**

**Comment** - EIS000817 / 0046

And then on p. 2-20 you discuss high particulate air filters. Where will all those go? -- I expect there to be a lot of them as unloading will be a messy business.

**Response**

Section 4.1.12 of the EIS discusses the management of repository-generated waste and hazardous materials. If the repository was recommended and approved, DOE currently plans to dispose of contaminated high-efficiency particulate air filters in the low-level radioactive waste burial grounds at the Nevada Test Site, and uncontaminated filters in an onsite landfill.

**7.5.10 (8030)**

**Comment** - EIS000817 / 0074

"Dry storage generates minimal, if any, amounts of low level waste." Do you know this for sure? How? If you keep recasking over time -- won't all the casks be low level waste? And the pads? And probably soil underneath the pad? And the transport casks and transporters and transfer casks, etc. -- all the "facilities needed for dry cask" -- consider everything used now that wasn't needed for just pool storage before. That all becomes new low level waste, doesn't it? Even if you decontaminate it, the material used for that becomes low level waste itself ... What's the total low-level waste projected for the repository lifetime? Where will it go? This has to be solved now before any decision is made to open Yucca Mountain. I see now on p. 4-78 that you plan to put it at the Nevada Test Site. So Nevada gets stuck with the whole bit, right? Have you evaluated low level waste from unloading casks and recasking casks? This will need to be done. And I wouldn't count on Envirocare existing forever to take mixed waste, either. I see you plan to put mixed waste and landfill waste at the test site too -- more waste in Nevada. And if the test site closes in the future, what then? And I wouldn't plan on recycling dual-purpose containers.

**Response**

The *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* states, "...dry storage generates no LLW" (DIRS 101899-NRC 1996). The casks would not be low-level waste unless they were contaminated by releases from fuel bundles to such a degree that they could not be decontaminated. Releases from intact fuel rods are unlikely during dry storage. In addition, "Zircaloy-clad fuel bundles do not appear to degrade as a result of long-term pool storage" (DIRS 101899-NRC 1996). Similarly, even if releases occurred from the fuel bundle, the contamination would be contained in the casks, and the concrete horizontal storage modules, the pads, and the soil beneath the pads would not become contaminated.

Table 4-41 of the EIS contains an estimate of the total low-level waste projected for the Proposed Action during operations and monitoring and closure. The estimates vary depending on whether the repository received the waste uncanistered, in disposable canisters, or in dual-purpose canisters. The estimated total low-level waste generation would be 71,000 cubic meters (2.5 million cubic feet) for uncanistered fuel, 21,000 cubic meters (740,000 cubic feet) for fuel in disposable canisters, and 29,000 cubic meters (1 million cubic feet) for dual-purpose canisters. These estimates include wastes generated during cask unloading operations and placement of the waste in disposal containers. Under current plans, DOE would dispose of the low-level waste generated during operations and monitoring and closure in the low-level waste management facilities at the Nevada Test Site.

DOE would dispose of mixed wastes, if any, at a permitted treatment and disposal site.

The Record of Decision for the low-level radioactive waste disposal, based on the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (DIRS 101816-DOE 1997), states that the Hanford Site in Washington and the Nevada Test Site will be available to all DOE sites for low-level radioactive waste disposal (65 FR 10061, February 25, 2000).

If DOE used dual-purpose canisters and did not recycle them, they would add an estimated 44,000 cubic meters (1.6 million cubic feet) to the estimated quantities of low-level radioactive waste that activities at the proposed Yucca Mountain Repository would generate (see Table 4-43 of the EIS).

**7.5.10 (8367)**

**Comment** - EIS001873 / 0051

P. 4-79. DOE should state what will be the capacity for low-level waste at NTS 300 years from now.

**Response**

Section 8.2.12.1 of the EIS describes the capacity of low-level radioactive waste disposal at the Nevada Test Site. As stated in *The Current and Planned Low-Level Waste Disposal Capacity Report* (DIRS 103224-DOE 1998), "Nevada Test Site has the capability of expanding disposal operations to accommodate disposal [of] larger volumes of low-level waste. Given the site conditions and performance attributes of disposal facilities at the Nevada Test Site, the maximum expandable volumetric capacity would be limited only by the size of the usable disposal land at the Nevada Test Site." Based on this information, the Nevada Test Site could accommodate the volumes of low-level radioactive waste that would be generated through closure of the proposed repository (see Section 4.1.12).

**7.5.10 (8843)**

**Comment** - EIS000869 / 0016

S.4.1.13, paragraph one, states that the DOE would use less than 3 percent of the existing off-site capacity for low-level radioactive waste disposal, but does not identify the location or mode of transport to be utilized. If, as I assume, the location is at the Nevada Test Site, are they going to be allowed access to this area since paragraph S.4.2.2 states that the Nevada Test Site strongly opposes transport via the Caliente-Chalk Mountain route citing security and operations interference.

**Response**

Section S.4.2.2 of the EIS states that the U.S. Air Force, not the Nevada Test Site, which is a DOE facility, opposes the Caliente-Chalk Mountain Corridor because it could adversely affect national security-related activities at the Nellis Air Force Range. Shipments of low-level radioactive waste for disposal at the Nevada Test Site would not cross or otherwise affect Air Force-controlled areas, and would not have the potential to affect Air Force operations.

The *Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* (DIRS 101811-DOE 1996) shows the locations of the waste management areas at the Nevada Test Site. Section J.3.6.2 of this EIS describes the impacts of transporting wastes from the repository to other offsite facilities.

**7.5.10 (9934)**

**Comment** - EIS001860 / 0012

Yes, please, do recycle dual-purpose canisters. That's the least we can do.

**Response**

Section 4.1.12.2 of the EIS states that the dual-purpose canister packaging scenario could result in the need to dispose of an estimated 44,000 cubic meters (1.6 million cubic feet) of low-level radioactive waste in addition to the quantities described in Table 4-40 under the flexible design operating mode scenarios. If this packaging scenario were to occur, DOE would, consistent with applicable regulatory requirements and waste minimization and pollution prevention principles, evaluate whether recycling would be more protective of the environment than disposal. Since recycling would involve melting and recasting of the canister metal (to enable other uses), DOE would need to consider such things as the additional quantities of waste and potential worker exposures resulting from decontamination of the canisters, and whether recycling would be cost-effective. Cost-effectiveness would include the value of scrap steel at the time, the cost of transporting the scrap to a recycling facility, and the cost of decontaminating the scrap steel to acceptable levels. These decisions would be made closer in time to the actual operations at the proposed repository to ensure consideration of intervening changes and potential new recycling technologies or techniques that could provide additional benefits or savings.

**7.5.10 (12349)**

**Comment** - 010242 / 0026

The Supplement indicated that the amount of LLW generated under the S&ER flexible design would be the same as that for the Draft EIS design. This would appear to be inconsistent with the requirement for the operation and maintenance of the expanded blending pools in the revised design. The Supplement should have specifically evaluated fuel blending and related activities in terms of the expected volumes of LLW that will be generated and compared that to the LLW estimates contained in the Draft EIS.

**Response**

The Supplement to the Draft EIS discussed the waste volumes estimated for the uncanistered packaging option. The Draft EIS, Section 2.1.2.1.1, describes how uncanistered spent nuclear fuel would be placed in a water pool. The Draft EIS low-level radioactive waste volume accounted for the waste generated as a result of the operation of those pools. Site-generated low-level radioactive waste generation was estimated based on the number of casks, canisters, and waste packages processed. The number of casks, canisters, and waste packages processed under the flexible design did not change appreciably from the Draft EIS uncanistered packaging option. Therefore, the low-level radioactive waste estimated to be generated under the flexible design did not change appreciably from the Draft EIS uncanistered packaging option.

**7.5.10 (12782)**

**Comment** - 010104 / 0005

Section 3.1.12.1: One possibility is for construction and demolition debris to be disposed of at the NTS U-10c landfill. The Yucca Mountain waste is not authorized for NTS disposal.

**Response**

Construction and demolition debris is a nonhazardous, nonradioactive waste stream. The prior authorization for waste disposal to which the commenter may be referring is the DOE Waste Certification Program applicable to low-level radioactive waste. As stated in Section 3.1.12.1 of the Draft EIS, construction and demolition debris generated by the Yucca Mountain Project is disposed of at the Nevada Test Site.

**7.5.10 (12783)**

**Comment** - 010104 / 0006

Section 3.1.12.3: One possibility is for sanitary and industrial solid waste to be disposed at the NTS Area 23 landfill. This waste is not authorized for NTS disposal.



**Response**

Sanitary and industrial solid waste is a nonhazardous, nonradioactive waste stream. The prior authorization for waste disposal to which the commenter may be referring is the DOE Waste Certification Program applicable to low-level radioactive waste. As stated in Section 3.1.12 of the Draft EIS, sanitary and industrial solid waste generated by the Yucca Mountain Characterization Project is disposed of at the Nevada Test Site.

**7.5.10 (13087)**

**Comment** - 010227 / 0005

The evaporation pond, which is described in the SDEIS as a method of dealing with wastewater from the site, does not talk about the removal of sludge from that pond and their environmental/health effects.

**Response**

Section 4.1.12.2 of the EIS discusses pond sludge removal at the two evaporation ponds.

**7.5.10 (13089)**

**Comment** - 010227 / 0007

The SDEIS talks about the Low-Level Radioactive wastes, which would be generated from the project, and declares that those wastes would take up 2.3% of NTS LLRW disposal capacity. How was the capacity of the NTS determined? Does this projection take into consideration the projections for LLRW disposal over the next few centuries?

**Response**

The capacity of the NTS was referenced to *The Current and Planned Low-Level Waste Disposal Capacity Report, Revision 2* (DIRS 155856-DOE 2000). This document contains the methodology for the determining the Nevada Test Site (NTS) capacity. The projection of 2.3 percent of NTS low-level radioactive waste disposal capacity does not account for the waste that DOE has projected for disposal at NTS. However, Section 8.2.12 of the Draft EIS did account for the low-level radioactive waste that is projected for disposal at NTS along with Yucca Mountain-generated low-level radioactive waste. The impact to the NTS disposal capacity above that to be consumed by projected disposal (reserve capacity) was stated to be 2.8 percent for the Proposed Action. Section 4.1.12.2 of the Final EIS discusses impact to the NTS reserve capacity based on DOE most current projections of disposal capacity and planned disposal through 2070.

**7.5.10 (13210)**

**Comment** - 010244 / 0009

Despite a small increase in total employment, the SDEIS projects a 42% increase in solid waste generated under the low temperature alternative. There is no explanation for this dramatic increase outlined in the SDEIS. Hazardous waste is projected to be up to 15,000 cubic meters and sanitary and industrial waste up to 190,000 cubic meters. Industrial wastewater, which is projected at 3,400 million liters, is to be disposed of in onsite systems. Construction and demolition debris is projected to be as much as 810,000 cubic meters over the life of the project and use as much as 82% of the NTS landfill where it would be disposed. The Supplement offers no clear explanation for these large increases.

**Response**

Section 3.1.12 of the Supplement to the Draft EIS discusses waste generation. That section explains that the largest waste volumes would result from the lower-temperature repository operating mode.

The comment refers to the upper range of sanitary solid and industrial solid generated under the lower-temperature operating mode, 190,000 cubic meters compared to 85,000 cubic meters under the Draft EIS thermal load scenario. The increase in sanitary and industrial solid waste would come from the additional workers for the construction and operation of the surface aging facility and more years (up to 300 years) of postemplacement monitoring. It is the increase in time that the workers are onsite for monitoring (300 years compared to 76 years under the Draft EIS scenario) that primarily would contribute to the increase in sanitary and industrial solid waste, rather than the increase in the size of the workforce.

Updated data was used to recalculate hazardous waste and industrial wastewater volumes for the Final EIS. The upper range of hazardous waste volume and the full range of industrial wastewater volumes estimated under the

lower-temperature cases are much lower than the estimates provided in the Supplement to the Draft EIS. These decreases are reflected in Final EIS Section 4.1.12 tables presenting operations and closure waste volumes.

The comment refers to the upper range of construction and demolition debris generated under the lower-temperature operating mode, 810,000 cubic meters compared to 150,000 cubic meters under the Draft EIS thermal load scenario. Additional waste would be generated from the construction and demolition of a surface aging facility and 4,500 dry storage vaults. DOE used updated data to recalculate construction and demolition debris for the Final EIS. The upper range estimated under the lower-temperature repository operating mode is much lower than the estimate provided in the Supplement to the Draft EIS.

#### **7.5.10 (13447)**

**Comment** - 010296 / 0032

Table 3-1 of the DSEIS provides comparative analysis of the various scenarios considered by DOE. The most noticeable impact, and probably of most imminent concern to Nye County is the volume of the waste and hazardous waste generated by the large excavation required for the LTOM [lower-temperature operating mode]. To assume that the entire Nevada Test Site will be available to DOE for Yucca Mountain operation for the next 50 to 325 years is an unfair and unrealistic assumption. Yucca Mountain Project should attempt to be as self-sufficient as possible in as short of a time frame as practical.

#### **Response**

Updated data were used to estimate the waste volumes for the Final EIS. The estimated maximum volumes of all waste types except low-level radioactive waste under the lower-temperature repository operating mode would decrease.

As discussed in Section 4.1.12 of the EIS and Section 3.1.12 of the Supplement to the Draft EIS, if the repository was recommended and approved, DOE currently plans to dispose of waste streams onsite with the exception of low-level radioactive waste at the Nevada Test Site (NTS) and hazardous waste at a commercial facility. However, DOE acknowledges that if a landfill for disposing of nonhazardous waste is not constructed onsite, sanitary and industrial solid waste and construction and demolition debris may be transported to NTS for disposal.

There are uncertainties with regard to predicting events that are as far in the future as 300 years and DOE recognizes that low-level radioactive waste disposition might need to be revisited at some point in the future. If that need occurs, waste disposition proposals would receive National Environmental Policy Act reviews. However, DOE believes that disposition at the NTS is a reasonable assumption because the low-level radioactive waste volume estimated for the repository through closure is well within the disposal capacity of the current disposal facility even with NTS being a DOE regional disposal facility (see Section 8.2.12.1). Furthermore, DOE's *Current and Planned Low-Level Disposal Capacity Report* Revision 2 notes that "NTS has the capability of expanding operations to accommodate disposal of larger LLW [low-level radioactive waste] volumes. Given the site conditions and performance attributes of disposal facilities at the NTS, the maximum expandable volumetric capacity is limited only by the size of the usable disposal land at the NTS. This usable area is expected to greatly exceed the volume of DOE LLW requiring disposal" (DIRS 155856-DOE 2000).

### **7.5.11 ENVIRONMENTAL JUSTICE/NATIVE AMERICAN ISSUES**

#### **7.5.11 (52)**

**Comment** - 14 comments summarized

Commenters criticized the DOE methodology that was used to analyze environmental justice. Some commenters stated that the Draft EIS approach of using a two-staged assessment masks significant impacts to minorities and low-income populations. Commenters stated that the analysis should have first identified the location of minority and low income communities, then determined if there would be negative impacts disproportionate to them. Instead, the Draft EIS first identified impacts to the general population and then determined whether the impacts would disproportionately impact minority or low income communities. Commenters stated that the significance to these communities is not measured by this methodology. Commenters stated that neither specific locations of affected communities were identified nor were specific characteristics within affected communities addressed. Another commenter questioned that if no baseline analysis of existing threats in the affected minority or low-income population was completed, then how could DOE determine whether the impacts from nuclear waste transportation